In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Please amend claims 1, 15, 21 and 27 as follows:

1. (**Currently Amended**) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

a) SEQ ID NO:3, or a fragment thereof;

b) SEQ ID NO:4, or a fragment thereof;

c) a sequence at least 90% homologous to SEQ ID NO:3 or SEQ ID NO:4, or a fragment thereof;

d) a sequence that encodes a polypeptide comprising SEQ ID NO:5, or a fragment thereof; and

e) a sequence that encodes a polypeptide comprising an amino acid sequence at least 90% homologous to SEQ ID NO:5, or a fragment thereof;

wherein the nucleic acid molecule encodes at least a portion of a tankyrase homolog protein.

2. (**Original**) The nucleic acid molecule of claim 1, which is DNA.

3. (**Original**) The nucleic acid molecule of claim 1, which is RNA.

4. (**Original**) The nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises SEQ ID NO:4.

5. (**Original**) An isolated nucleic acid molecule comprising a nucleotide sequence complementary to at least a portion of SEQ ID NO:3 or SEQ ID NO:4, wherein a complement of the nucleic acid molecule encodes at least a portion of a tankyrase homology protein.

6. **(Original)** The nucleic acid molecule of claim 5, which is an antisense oligonucleotide directed to SEQ ID NO:3 or SEQ ID NO:4.

7. **(Original)** The nucleic acid molecule of claim 6, wherein the oligonucleotide is directed to a regulatory region of SEQ ID NO:3 or SEQ ID NO:4.

Claim 8 **(cancelled)**

9. **(Previously presented)** An expression vector comprising a nucleic acid molecule of claim 1 or claim 5.

10. **(Original)** The vector of claim 9, which is a plasmid or a viral particle.

11. **(Previously presented)** The vector of claim 10, which is selected from the group consisting of adenoviruses, parvoviruses, herpesviruses, poxviruses, adeno-associated viruses, Semliki Forest viruses, vaccinia viruses, and retroviruses.

12. **(Previously presented)** The vector of claim 9, wherein the nucleic acid molecule is operably connected to a promoter selected from the group consisting of simian virus 40, mouse mammary tumor virus, long terminal repeat of human immunodeficiency virus, maloney virus, cytomegalovirus immediate early promoter, Epstein Barr virus, rous sarcoma virus, human actin, human myosin, human hemoglobin, human muscle creatine kinase, and human metalothionein.

Claim 13 **(cancelled)**

14. **(Previously presented)** A host cell transformed with the vector of claim 9.

15. **(Currently Amended)** The host cell of claim 14, which is a bacterial cell~~, e.g. E. coli~~.

16. **(Previously presented)** The host cell of claim 14, which is a yeast.

17. **(Previously presented)** The host cell of claim 14, which is an insect cell.

18. **(Previously presented)** The host cell of claim 14, which is a mammalian cell.

19. **(Previously presented)** An isolated polypeptide encoded by the nucleic acid molecule of claim 1.

20. **(Original)** The polypeptide of claim 19, which comprises SEQ ID NO:5.

21. **(Currently Amended)** The polypeptide of claim 19, which comprises an amino acid at least 90% homologous to SEQ ID NO:5.

22. **(Original)** The polypeptide of claim 21, which comprises at least one conservative amino acid substitution compared to SEQ ID NO:5.

23. **(Original)** The polypeptide of claim 19, which comprises a fragment of SEQ ID NO:5.

Claim 24 **(cancelled)**

Claim 25 **(cancelled)**

26. **(Original)** A method of producing a polypeptide comprising SEQ ID NO:2, or a homolog or fragment thereof, comprising the steps of:

a) introducing a vector of any of claims 9 to 12 into a compatible host cell;

b) growing the host cell under conditions for expression of the polypeptide; and

c) recovering the polypeptide.

27. **(Currently Amended)** The method of claim 26 ~~25~~, wherein the host cell is lysed and the polypeptide is recovered from the lysate.

28. **(Original)** The method of claim 26, wherein the polypeptide is recovered by purifying the culture medium without lysing the host cell.

29. **(Currently Amended)** An isolated antibody which specifically binds to an epitope on a polypeptide of claim 19.

30. **(Original)** The antibody of claim 29, which is monoclonal antibody.

Claim 31 **(cancelled)**

32. **(Previously presented)** A kit comprising an antibody which binds to a polypeptide of claim 28, and a negative control antibody.

33. **(Original)** A method for identifying a compound which binds tankyrase homolog protein (THP), comprising contacting THP with a compound, and determining whether the compound binds THP.

34. **(Previously presented)** The method of claim 33, wherein the determining comprises a protein binding assay.

35. **(Original)** A method for identifying a compound which binds a nucleic acid molecule encoding tankyrase homolog protein (THP), comprising contacting the nucleic acid molecule encoding THP with a compound, and determining whether the compound binds the nucleic acid molecule.

36. **(Original)** The method of claim 35, wherein the determining comprises a gel-shift assay.

37. **(Original)** A method for identifying a compound which modulates the activity of tankyrase homology protein (THP), comprising contacting THP with a compound, and determining whether THP activity has been modulated.

38. **(Original)** The method of claim 37, wherein the activity is ADP-ribosylation of TRF1 binding.

39. **(Previously presented)** A compound identified by the method of claim 33.

40. **(Previously presented)** A vector of claim 9, wherein the nucleic acid molecule comprises SEQ ID NO:4.

41. **(Previously presented)** The host cell of claim 15, wherein the bacterial cell is *E. coli.*

42. **(Previously presented)** The host cell of claim 16, wherein the yeast is *S. cerevisiae.*

43. **(Previously presented)** The host cell of claim 17, wherein the insect cell is *S. frugiperda.*

44. **(Previously presented)** The host cell of claim 18, wherein the mammalian cell is selected from the group consisting of chinese hamster ovary cells, HeLa cells, African green monkey kidney cells, human 293 cells, and murine 3T3 fibroblasts.

45. **(Previously presented)** The method of claim 34, wherein the protein binding assay is selected from the group consisting of a gel-shift assay, Western blot, radiolabeled competition assay, phage-based expression cloning, co-fractionation by chromatography,

co-precipitation, cross-linking, interaction trap/two-hybrid analysis, southwestern analysis, and ELISA.

46. **(Previously presented)** A composition comprising a nucleic acid molecule of claim 1 or 5 and an acceptable carrier or diluent.

47. **(Previously presented)** A composition comprising a vector of claim 9 and an acceptable carrier or diluent.

48. **(Previously presented)** A composition comprising a polypeptide of claim 19 and an acceptable carrier or diluent.

49. **(Previously presented)** A composition comprising an antibody of claim 29 and an acceptable carrier or diluent.

50. **(Previously presented)** The kit of claim 32 further comprising instructions.

51. **(Previously presented)** A kit comprising a nucleic acid molecule of claim 1 or 5.

52. **(Previously presented)** The kit of claim 51 further comprising instructions.

53. **(Previously presented)** A kit comprising a polypeptide of claim 19.

54. **(Previously presented)** The kit of claim 53 further comprising instructions.

55. **(Previously presented)** A method of inducing an immune response in a mammal against a polypeptide of claim 19 comprising administering to said mammal an amount of said polypeptide sufficient to induce said immune response.

56. **(Previously presented)** A compound identified by the method of claim 35.

57. **(Previously presented)** A compound identified by the method of claim 37.